

(19)



JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11) Publication number: 58131781 A

(43) Date of publication of application: 05.08.1983

(51) Int. Cl H01L 33/00

(21) Application number: 57013457
(22) Date of filing: 29.01.1982

(71) Applicant: NEC CORP
(72) Inventor: SUZUKI AKIRA

(54) SURFACE LUMINOUS TYPE LIGHT-EMITTING DIODE

(57) Abstract:

PURPOSE: To obtain the surface luminous type light-emitting diode, in which an optical output radiant component to a semiconductor substrate is reflected and condensed, and absorbed and light-emitted again in a light-emitting region and effective luminous quantum efficiency is improved, by forming the substrate to a semispherical shape formed centering around the light-emitting region and constituting an optical reflecting mirror onto the semispherical shape.

CONSTITUTION: Residual approximately 27% obtained by subtracting approximately 3% of total optical output transmitting a light extracting window section from approximately 30% of total optical output transmitting the semiconductor substrate 1 from an active layer 2 is totally reflected and condensed by an n type electrode 7 taking the semispherical shape formed centering around the light-emitting region, projected into the light-emitting region of the active layer 2 again, and absorbed and light-emitted again. When the crystal internal quantum efficiency of the active layer 2 is made 100% and absorption and re-luminous power

conversion efficiency 50%, the rise of effective luminous quantum efficiency by the optical reflection of the n side electrode 7 taking the semispherical shape is approximately 27%.

COPYRIGHT: (C)1983,JPO&Japio

